

REMARKS

This is intended as a full and complete response to the Office Action dated June 13, 2008, having a shortened statutory period for response extended to expire on October 14, 2008. Please reconsider the claims pending in the application for reasons discussed below.

Claims 21-24 and 26-28 are rejected. Claims 21-24 and 26-28 remain pending in the application following entry of this response and are shown above. Claim 23 has been amended to correct a minor editorial problem and claim 28 has been amended for proper antecedent basis. Applicants submit that the amendments do not introduce new matter.

Claim Rejections - 35 U.S.C. § 103

Claims 21 and 23-28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Hongo et al.* (U.S. Patent No. 6,921,466, hereinafter, "*Hongo '466'*") in view of *Hongo et al.* (U.S. Patent No. 6,716,330, hereinafter, "*Hongo '330'*"). Applicants respectfully traverse this rejection.

The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. See MPEP § 2141. Establishing a *prima facie* case of obviousness begins with first resolving the factual inquiries of *Graham v. John Deere Co.*, 383 U.S. 1 (1966). The factual inquiries are as follows:

- (A) determining the scope and content of the prior art;
- (B) ascertaining the differences between the claimed invention and the prior art;
- (C) resolving the level of ordinary skill in the art; and
- (D) considering any objective indicia of nonobviousness.

Once the *Graham* factual inquiries are resolved, the Examiner must determine whether the claimed invention would have been obvious to one of ordinary skill in the art.

Applicants respectfully submit that, if the scope and content of the prior art is properly determined, differences between the claimed invention and the prior art can be readily ascertained as presented herein. Accordingly, Applicants submit a *prima facie* case of obviousness has not been established.

The combination of *Hongo* '466 in view of *Hongo* '330 does not teach, show, or suggest "at least two substrate processing modules in detachable communication with the factory interface, each of the at least two substrate processing modules including a pretreatment/post treatment cell and an electroless processing cell" as recited in independent claim 21. As the Examiner concedes on page 3 of the current Office Action, *Hongo* '466 "fails to teach the module includes an electroless [processing] cell and a pretreatment/post treatment cell."

Nevertheless, the Examiner contends that the embodiments of FIGs. 47 and 49 in *Hongo* '466 render claim 21 obvious. However, the "constitution of the plating module 512 is the same as the constitution shown in FIG. 14" (col. 53 lines 66-67). Referring back to the specification corresponding to FIGs. 12-16 of *Hongo* '466, Applicants respectfully submit that plating module 512, just like Cu film forming unit 2, uses electroplating, as opposed to electroless plating. The Examiner's attention is directed to electrode portion 2-5, anode 2-20, and cathode 2-17 in FIGs. 12-16 and the specification, which states that "the electrode portion 2-5 is lowered toward the cathode portion 2-10. When lowering of the electrode portion 2-5 is completed, a *plating voltage is applied* to the anode 2-20 and the cathode portion 2-10, and the plating liquid is supplied to the interior of the electrode portion 2-5" (col. 21 lines 23-28, emphasis added). Thus, the embodiments of FIGs. 47 and 49 teach an electroplating module and do not teach, show, or suggest an electroless processing cell.

Furthermore, *Hongo* '330 fails to overcome the deficiencies in *Hongo* '466. Rather than teaching or suggesting "substrate processing modules in detachable communication with the factory interface, each of the at least two substrate processing modules including a pretreatment/post treatment cell and an electroless processing cell" as recited in independent claim 21, *Hongo* '330 teaches a standalone system (the

"whole structure of the substrate processing apparatus" of FIG. 4) having, for example, an electroless plating apparatus 62 and a cleaning apparatus 64 "for performing a post-treatment after plating" (col. 8 line 62 to col. 9 line 11). The substrate processing apparatus of *Hongo* '330 is not a module or contained within a housing; rather, the "substrate processing apparatus is placed on a rectangular installation floor 50" (col. 8 lines 3-4).

Therefore, the substrate processing apparatus of *Hongo* '330 is similar to the substrate processing apparatus in FIG. 31 of *Hongo* '466, which teaches a *separate* electroless Cu plating unit (seed layer forming unit 112) or electroless Ru plating unit (barrier layer forming unit 111) and a *separate* cleaning unit 115 or 118 (col. 33 line 59 to col. 34 line 15). Both the substrate processing apparatus of FIG. 4 in *Hongo* '330 and of FIG. 31 in *Hongo* '466 are standalone systems rather than modules that are part of a larger system. Thus, *Hongo* '330 fails to overcome the deficiencies in *Hongo* '466.

Accordingly, Applicants submit that independent claim 21, as well as those claims that depend therefrom, are allowable and respectfully request withdrawal of this rejection.

Claim 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Hongo* '466 in view of *Hongo* '330 and *Verhaverbeke et al.* (U.S. Publication 2003/0045098, hereinafter, "*Verhaverbeke*"). Applicants respectfully traverse this rejection.

Verhaverbeke fails to overcome the deficiencies in *Hongo* '466 in view of *Hongo* '330. Accordingly, Applicants submit that claim 22, in view of allowable independent claim 21, is allowable and respectfully request withdrawal of this rejection.

Claims 21 and 23-28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Hongo* '466 in view of *Dordi et al.* (U.S. Patent No. 6,267,853, hereinafter, "*Dordi*"). Applicants respectfully traverse this rejection.

The combination of *Hongo* '466 in view of *Dordi* does not teach, show, or suggest "at least two substrate processing modules in detachable communication with the factory interface, each of the at least two substrate processing modules including a

pretreatment/post treatment cell and an electroless processing cell" as recited in independent claim 21. As the Examiner concedes on page 6 of the current Office Action, *Hongo '466* "fails to teach [the] substrate processing system includes at least two substrate processing modules each of which include an electroless [processing] cell and a pretreatment/post treatment cell." Furthermore, as argued above with respect to claim 21, the embodiments of FIGs. 47 and 49 in *Hongo '466* teach an electroplating module and do not teach, show, or suggest an electroless processing cell.

Moreover, *Dordi* fails to overcome the deficiencies in *Hongo '466*. *Dordi* teaches a seed layer repair station 215 within the electroplating system platform 200 and that "one or more electroless deposition cells or modules are disposed in the seed layer repair station" (col. 12 lines 21-22 and FIG. 3). *Dordi* teaches "two [electroless deposition processing (EDP)] cells can be arranged side-by-side for greater throughput rates" (col. 12 lines 28-29). Applicants respectfully submit, however, that this does not teach a processing module "including a pretreatment/post treatment cell and an electroless processing cell" as recited in claim 21.

Accordingly, Applicants submit that independent claim 21, as well as those claims that depend therefrom, are allowable and respectfully request withdrawal of this rejection.

Claim 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Hongo '466* in view of *Dordi* and *Verhaverbeke*. Applicants respectfully traverse this rejection.

Verhaverbeke fails to overcome the deficiencies in *Hongo '466* in view of *Dordi*. Accordingly, Applicants submit that claim 22, in view of allowable independent claim 21, is allowable and respectfully request withdrawal of this rejection.

Conclusion

Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted, and



Keith M. Tackett
Registration No. 32,008
PATTERSON & SHERIDAN, L.L.P.
3040 Post Oak Blvd. Suite 1500
Houston, TX 77056
Telephone: (713) 623-4844
Facsimile: (713) 623-4846
Attorney for Applicants